

Stephen D. (Steve) Brady

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PROFESSIONAL SUMMARY

Assistant Professor of Operations, Case Western Reserve University, 2017–present.

Founder/Director, Center for Applied Digital and Operational Research, www.cador.org, 2015–present.

Provided pro bono analytical assistance for operational problems in nonprofit organizations.

Established and supervised educational internships for STEM and financial management students.

Visiting Associate Professor of Operations Research, Bucknell University, 2012–2014;

Former visiting professor/teaching scholar at Stanford, UCLA, and Naval Postgraduate School.

Senior Operations Researcher, RAND, Santa Monica 1992–1998; Pittsburgh 2000–2011.

Solved risk-laden planning problems in resource allocation, health, manpower, and energy.

Led complex analytical work to influence national aviation, transportation, and logistics policy.

Directly impacted presidential, parliamentary, and national security leadership mandates.

Supported multi-billion-dollar resource allocation decisions for uncertain systems.

Advised senior policy-makers on quality-of-life issues affecting many thousands of families.

Helped establish major research office; recruited, mentored, and directed research staff.

Developer/consultant to Oak Ridge National Laboratory, Battelle-Columbus Laboratories, Electric Power Research Institute (EPRI), Stanford University Systems Optimization Laboratory, Tennessee Valley Authority (TVA), Hydro-Québec, Arthur D. Little, Arcata National Corporation/Kingsport Press, and International Institute for Applied Systems Analysis (IIASA).

EDUCATION/TRAINING

Ph.D. in Operations Research, Stanford University, School of Engineering, 1993;

Committee: Richard Cottle, George Dantzig, Michael Saunders;

M.S. in Statistics, Stanford University, School of Humanities and Sciences;

M.S. in Management Science with Artificial Intelligence concentration,

University of Tennessee, Colleges of Business Administration and Engineering;

B.S. with Highest Honors in Industrial Management/Management Science,

University of Tennessee, College of Business Administration;

PPL-ASEL license, complex and high-performance aircraft endorsements, FAA.

HONORS

RAND Merit Award (team award for IED policy research, as team leader), 2008;

Civilian Special Certificates and Selected Coins of Appreciation from:

Joint Task Force Paladin, Bagram Airfield, Afghanistan, 2007;

Chairman of the U. S. Joint Chiefs of Staff, Bagram, Afghanistan, 2007;

Military Operations Research Society, Laurel, MD, 2007;

RAND Merit Award (team award for IED work in Afghanistan), 2007;

President's Award, RAND (for Amsterdam Schiphol Airport, aviation risk modeling), 1994;

Nominee, A. W. Tucker Prize, Mathematical Programming Society, 1993;

Stanford Engineering Graduate Fellow, 1984–1985;

Chancellor's Award for Outstanding Teaching, University of Tennessee, 1982;

The Honor Societies of Phi Kappa Phi and Beta Gamma Sigma.

RESEARCH / DEVELOPMENT EXPERIENCE

RAND Corporation (1992–1998 Santa Monica, 2000–2011 Pittsburgh):

RAND Health Unit: Health insurance policy modeling (see www.randcompare.org).

RAND Europe: Risk planning model for improving safety near airports—for *Netherlands Ministry of Transport and Schiphol Airport Authority, Amsterdam*.

RAND Enterprise Analysis Unit: Decision system and analysis for green-energy asset management—for *Unocal of California*.

RAND National Defense Research Institute:

- Simulation modeling/analysis of options for ending stop-loss manpower retention practice—for *Secretary of Defense (led to Presidential order to cease decades-old stop-loss policy)*;
- Analysis of the operational environment for reducing IED activity (using data mining, statistical pattern recognition, geographic information systems)—for *Joint IED Defeat Organization (JIEDDO)*;
- Predictive modeling studies of IED activity—at *Joint Task Force Paladin, Bagram, Afghanistan*;
- Data system design and development—at *International Security Assistance Force (ISAF) Headquarters, Kabul, Afghanistan*.

RAND Arroyo Center:

- Supply chain model assessment and design for parts procurement, major system acquisition, and equipping strategy; inventory and capacity planning models—for *U.S. Army Deputy Chief of Staff (Logistics)*;
- Simulation tools for improving quality of life for soldier families through personnel assignment policies; assessment of lifecycle manning policy effects on unit readiness and individual training; optimization tools for deployment rotation planning and homeland security—for *Assistant Secretary of the Army (Manpower and Reserve Affairs)*.

RAND Project Air Force: Simulation tools for technical training schoolhouse design, capacity planning, and educational policy—for *U.S. Air Force Air Education and Training Command*.

RAND [Other]: Project reviews and proposals for freight transport systems, forest fire emergency response planning, and earthquake response decision systems in the US and Japan.

Additional research sponsors/employers and results:

Stanford University Systems Optimization Laboratory and Electric Power Research Institute (EPRI): Medical and nondestructive industrial imaging methods, energy system capacity-planning models;

International Institute for Applied Systems Analysis (IIASA), Austria: Stochastic optimization methods for energy planning;

Battelle-Columbus Laboratories: Optimal emergency facility location methods;

Oak Ridge National Laboratory (DOE): Energy grant oversight (National Coal Model), energy productivity studies, project planning software development;

Tennessee Valley Authority (TVA) and Hydro-Quebec, Canada: Nonlinear energy network optimization tools, optimal reservoir release scheduling tools;

Arthur D. Little: Object-oriented modeling environment/4GL design;

Arcata National Corporation/Kingsport Press: Order-entry process design for book manufacturing.

TEACHING / MENTORING EXPERIENCE

Faculty Affiliations

Case Western Reserve University (CWRU), Operations Department, Weatherhead School of Management
Stanford University, Department of Management Science and Engineering
University of California, Los Angeles (UCLA) School of Engineering and Anderson School of Management
Bucknell University Operations and Decision Sciences, School of Management
Naval Postgraduate School (NPS) Graduate School of Operational and Information Sciences
University of Tennessee, Knoxville (UTK) Mathematics Department and Management Science Program
University of Wisconsin, River Falls (UWRF) Management, College of Business and Economics
San Diego State University (SDSU) Management Department, College of Business Administration
Santa Clara University (SCU) Department of Decision and Systems Sciences, Leavey School of Business

Undergraduate Courses Taught

Statistics for Business and Management Science, 2018–2019 (CWRU);
Operations Research and Supply Chain Management, 2017–2018 (CWRU);
Decision Science/Operations Research, 2013–2014 (Bucknell);
Operations Management, 2012–2014 (Bucknell);
Managerial Statistics, 2012 (Bucknell);
Operations Research/Management Science, 1999–2000 (UWRF);
Management Information Systems, 1999 (UWRF);
Database Application Development, 1999 (UWRF);
The Computer in Business, 1998–2000 (UWRF);
Management and Organizational Behavior, 1998 (UWRF);
Introduction to Computers, 1986–1987 (SCU);
Management Science Methods, 1983–1984 (SDSU);
Calculus and Differential Equations, 1980–1981 (UTK).

Graduate Courses Taught

Operations Management, 2017–2019 (CWRU);
Graphs and Network Flows, 1997–1998 (UCLA);
Integer Programming and Network Flows, 1997 (UCLA);
Stochastic Models in Operations Research, 1989 (Stanford);
Operations Research for Computer Systems Managers, 1989 (NPS);
Statistical Analysis, 1988–1989 (NPS);
Linear Programming, 1985 (NPS);
Management Science Methods—for MBA students, 1983–1984 (SDSU);
Deterministic Models in Operations Research—for MBA students, 1983–1984 (SDSU);
Calculus and Analytic Geometry—for MBA students, 1981–1982* (UTK);
Deterministic and Probabilistic Decision Models—for MBA students, 1980, 1982* (UTK).

*Chancellor's Award for Outstanding Teaching

PROFESSIONAL / COMMUNITY SERVICE

Journal/textbook reviewer: MIT Press, Prentice Hall, Operations Research, Mathematical Programming, RAND Report Series, First International Conference on Decision Support Systems, International Migration Review, ongoing;

Member, Undergraduate and Integrated Studies Committee, Weatherhead School of Management, Case Western Reserve University, 2018.

Invited speaker, Special conference to honor Richard W. Cottle and Arthur F. Veinott, Jr., Stanford University Department of Management Science and Engineering, June 4, 2011;

Advisory Board founding member, Center for Uncertain Systems: Tools for Optimization and Management (CUSTOM), 2002–2013. Funded locations:

Vishwamitra Research Institute, Westmont, IL, 2003–2013,
University of Illinois-Chicago, Northwestern University, University of Chicago, 2002–2003,
Carnegie Mellon University, 2001–2002.

Co-Chair, Practitioner Interest Committee, 2004–2006, and Organizing Committee member, 2006, for Annual Meeting, Institute for Operations Research and the Management Sciences (INFORMS)—3,900 attendees and first time in Pittsburgh;

Mission team member, PROVADENIC (Nicaraguan Community Vaccination and Development Program), Health clinic construction in village of Quebrada Grande, Nicaragua, 2005;

Board of Directors member (for youth scholastic programs), Pittsburgh Chess Club, 2001–2002;

Chairman, Institute for Operations Research and the Management Sciences (INFORMS) OR/MS Speakers Program, 2000–2002 (regular committee member previously);

AACSB accreditation committee member, University of Wisconsin, River Falls, 1999–2000;

Founding member and Governing Body member, Computer Sciences and Information Systems Unit, College of Arts and Sciences, University of Wisconsin, River Falls, 1999–2000;

Director and founder, Decision Sciences Minor, University of Wisconsin, River Falls, 1998–2000;

Member, University of Wisconsin Systemwide Graduate Internet Consortium Curriculum Committee, 2000;

Organizer, Proposed Twin Cities Chapter, INFORMS, 1999–2000;

Committee member, Business computer lab design, University of Wisconsin, River Falls, 1999–2000;

Member, Faculty Senate Visiting Professor Committee, University of Wisconsin, River Falls, 1999–2000;

Adjunct consulting staff, RAND, 1998–2000;

Outreach faculty, School of Business and Economics Outreach Program, University of Wisconsin, River Falls, 1999;

Host, RAND Operations Research Group External Speaker Series, 1993–1998;

Recruitment volunteer, RAND Management Sciences Group, 1993–1998;

Member, INFORMS Academic/Practitioner Interface Committee, 1997;

Chairman, Stanford Operations Research Society (student chapter of Operations Research Society of America), 1985–1991;

Student representative, University of Tennessee Management Science Program Committee, 1981–1982;

Member, Editorial Board, DSS-81, First Annual International Conference on Decision Support Systems (Atlanta), 1981.

UNRESTRICTED PUBLICATIONS

- Brady, S., *Assessing Stop-Loss Policy Options through Personnel Flow Modeling*, ISBN 9780833068439, RAND, 2014;
- Brady, S., "Estimating Tax Unit Composition and Rates for Studies in Health Care Policy," IN-26281, RAND, in process;
- Oliker, O., T. Kelly, and S. Brady, "Personnel Policy in the Afghan National Security Forces," PM-3626-USCENTCOM, RAND, October, 2010;
- Brady, S., O. Al-Shahery, T. Kelly, G. Schbley, S. Elson, W. Perry, and L. Galway, "The Operational Environment in Iraq and its Effects on IED Use: A Quantitative Approach to Assessing Influential Factors and Estimating Local Risks," DRR-4657-OSD, RAND, September, 2008;
- Brady, S., and O. Al-Shahery, "Neighborhoods of Northwestern Baghdad: Historical Development and Factors for Examining Environmental Impacts on IED Activity," PM-3078-OSD, RAND, June, 2008;
- Brady, S., B. Orvis, and T. Lippiatt, "Personnel Policy Impacts of Army BCTs and Unit-Focused Stabilization," DRR-4527-A, RAND, May, 2008;
- Rankin, M., E. Loreda, M. Pearce, and S. Brady, [Document on electronic countermeasures for IEDs. Classified title upon approval], Counter-IED Branch, ISAF (NATO) HQ, Kabul, Afghanistan, 2007;
- Davis, L., M. Polich, M. Hix, M. Greenberg, S. Brady, and R. Sortor, *Stretched Thin: Army Forces for Sustained Operations*, ISBN 0833038168, RAND, 2005;
- Davis, L., M. Polich, M. Hix, M. Greenberg, S. Brady, and R. Sortor, "Balancing the Army Force Mix," DRR-3560-A, RAND, 2005;
- Lussier, F., S. Brady, R. Sortor, and M. Tseng, "Force Management and Personnel Policies," AB-684-A, RAND, 2003;
- Brady, S., "Replacement and Repair: Inventory Models in the Wholesale Supply Chain," internal document, RAND, 1998;
- Brady, S., and R. Hillestad, "Modeling the External Risks of Airports for Policy Analysis," MR-605-EAC, RAND/European-American Center for Policy Analysis, Delft, The Netherlands, July, 1995;
- Brady, S., J. Dumond, R. Eden, and J. Folkeson, "A New Approach to Supporting Depot-Level Maintenance Policymaking," in *Analytical Relevance Through Change: Proceedings of AORS XXXIII*, Ft. Lee, VA, November 7–9, 1994;
- Hillestad, R., K. Solomon, B. Chow, J. Kahan, B. Hoffman, S. Brady, J. Stoop, J. Hodges, H. Kloosterhuis, G. Stiles, E. Frinking, and M. Carrillo, *Airport Growth and Safety: A Study of the External Risks of Schiphol Airport and Possible Safety-Enhancement Measures*, ISBN 0833014188, RAND/European-American Center for Policy Analysis, Delft, The Netherlands, 1993;
- Brady, S., *New Mathematical Programming Approaches to the Problem of Image Reconstruction from Projections*, Ph.D. dissertation, Department of Operations Research, Stanford University, June, 1993;
- Brady, S., R. Rosenthal, and D. Young, "Interactive Graphical Minimax Location of Multiple Facilities with General Constraints," *IIE Transactions*, September, 1983;
- Brady, S., and R. Rosenthal, "Interactive Computer Graphical Solutions of Constrained Minimax Location Problems," *AIIE Transactions*, September, 1980.